

curious one when we consider that many parts of this region provide a suitable habitat for a species which has demonstrated that it is a great colonizer. I believe that it probably represents an ancient separation, as modern-day nominate *ibis* seems to have expanded from Africa and *coromandus* from south eastern Asia.

I would like to express my appreciation to the authorities of the British and Paris museums for lending me specimens and for their hospitality, and to Mr. E. Eisenmann for commenting on this paper.

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## *Pirenestes ostrinus* and some other species in Mwinilunga, Northern Rhodesia

by C. W. BENSON

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During a visit to Salujinga, in the north of the Mwinilunga District, at 10° 58' S., 24° 07' E., from 17th to 23rd March, 1963, when I was accompanied by my friend Mr. G. Bell-Cross, we were fortunate enough to find two nests of *Pirenestes ostrinus frommi* Kothe. On 18th March a male was disturbed from a nest in rich *Brachystegia* woodland, 20 yards from the edge of riparian evergreen forest ("mushitu"). It was built into the top of an 8ft. high bush of a *Syzygium* sp. It contained four eggs, incubation of which was about 50% complete. Two of them were unfortunately broken. The other two are described by Capt. C. R. S. Pitman as white, smooth, without gloss, size 17.4 x 14.1, 18.1 x 14.1 mm. The second nest, found on 23rd March, was inside mushitu, about 2ft. from the top of an unidentified 8ft. high sapling. The male parent was collected, with four feathered nestlings.

Both nests are typical estrildine-like, rather flimsy, structures, dome-shaped with entrance at the side. Approximate external dimensions (in mm.) are:— length 210, width 140, height 120, width of entrance 30. The first was made mainly of leaves of a wild ginger *Aframomum* sp., with some admixture of the leaves of a fern *Pteridium aquilinum* Kuhn, and lined with the grasses *Loudetia ?simplex* (Nees) Hubbard and *Panicum* sp. In the second, in which sanitation was poor, both the entrance and the bottom of the interior being heavily fouled with the nestlings' faeces, *P. aquilinum* predominated over *Aframomum* sp., while the lining was entirely of *Panicum* sp. The materials composing these nests support the conclusion to be drawn from their respective sites, that *Pirenestes ostrinus* is by no means confined to mushitu. Indeed all the species represented in these materials only occur outside mushitu.

Two further adults of *P. ostrinus* were collected on the same visit to Mwinilunga, by trapping with mist-nets set inside mushitu. All three had their crops crammed with unbroken hard white seeds of diameter about 2 mm. Those of one of the specimens were sent to the Federal Herbarium, Salisbury, and examined by R. B. Drummond. There were no fewer than

48 of these seeds, which he described as of an undescribed species of *Scleria*, a tall sedge growing in mushitu (that seeds of *Scleria* sedges were one common source of the food in the Congo was predicted by Chapin, 1954: 498). Mixed with the seeds were the fragments of the bodies and legs of 14 miscellaneous small spiders (Araneae). The crop-contents of two of the nestlings consisted of finely macerated plant material very similar to broken down seeds of the *Scleria* sp., and may have been regurgitated by a parent. There were also a few fragments of a hard material, purplish in colour, apparently parts of a seed-coat, but not of *Scleria*.

Measurements in mm. of the three adults and four juveniles are as follows:—

	Wing	Tail	Width of lower mandible at base
♂	65	55	13
♂	67	53	13
♂	66	54	15
Juv	48	17	10.5
„	50	16	10.5
„	49	20	—
„	51	23	—

Of 14 adult or nearly adult specimens collected at Salujinga in April and August/September, 1962, by trapping with mist-nets in mushitu, 4♂♂ have wing 64–69, width of lower mandible 13.5–17.5, 10♀♀ wing 64–68, width of lower mandible 12–16 mm. For measurements of each individual specimen, see Benson & Irwin (in press), and of other Northern Rhodesian specimens, Benson (1960). The heads of the last two juveniles tabled above were badly damaged at the time of collecting, so that it was impossible to take the third measurement. They have been preserved in spirit, and their mouths still show three pale yellow fleshy balls, each of diameter about 1 mm., on each side of the gape. At the time of collecting it was also noticed that just inside the mouth, immediately adjacent to these balls, was a contrasting area of black, while the interior of the mouth as a whole was yellow, with a black spot above the base of the tongue and another on each side of it. The foregoing agrees fairly well with the notes by Chapin (1954) on the mouths of nestlings. An adult female collected on 22nd March had the anterior of the inside of the mouth pale grey, the posterior darker, and lacked any of the contrasting pattern of the nestlings, which must be of value in guiding the parent when feeding the young in the darkness of a closed nest. Whereas adults of both sexes had the widened parts of the lids above and below the eye pale blue, the eyelids of the nestlings were merely an obscure dull greenish. This again agrees with the notes by Chapin (1954). In colour of plumage the nestlings are much the same brown colour as adult females, but with red confined to the upper tail-coverts, and much paler.

The opportunity is taken to also mention the collecting of specimens of *Sarothrura pulchra centralis* Neumann, *Alcedo leucogaster leopoldi* (Dubois), *Halcyon m. malimbica* (Shaw) and *Ploceus superciliosus* (Shelley) at Salujinga. Details are given by Benson & Irwin (*loc. cit.*). The *Alcedo* was a considerable surprise, though the other three were already known from Kasaji, in the Katanga.

I am especially indebted to Mr. A. Angus, of the Agricultural Research Station, Mt. Makulu, Northern Rhodesia, for his assistance in the identification of the species of plants mentioned. I must also thank Mr. C. M. N. White for reading through this note in draft. All the specimens of *Pirenestes* are in the National Museum, Bulawayo, except the eggs, which are in the British Museum.

## References:

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## The nesting of the Black-bellied Seed-cracker, *Pirenestes ostrinus* in Uganda and notes on its habitat and classification

by CHARLES R. S. PITMAN

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The classification of the races of *Pirenestes ostrinus* (Vieillot) is based on the black bodies of the ♂♂—they are brown in the ♂♂ of *Pirenestes minor* Shelley, size of birds and dimensions of bill, the races being generally referred to as large-billed or small-billed, but there are many intermediates. There must be a significant relationship between bill size (and its development) and the type and hardness of the seed on which these birds feed. With reference to bill size the van Somerens (1: p. 100) draw attention to the great variation in bill measurements of the Grosbeak Weaver, *Amblyospiza* from one locality which, however, an examination of some two hundred examples from several widespread regions does not bear out. Of taxonomic value is the mouth pattern of nestling *Pirenestes*.

Chapin (2: pp. 490-498) discusses in considerable detail the distribution of typical *Pirenestes ostrinus ostrinus* (Vieillot) and its races *P. o. rothschildi* Neumann and *P. o. maximus* Chapin, as well as briefly referring to *Pirenestes minor frommi* Kothe, which additional material (*vide* Benson *ibid* and 6: p. 110) indicates is a race of *P. ostrinus*. There seems to be some confusion over the identification of races of similar appearance in which differences are to a great extent based on mandible width. Material to enable satisfactory conclusions is still scanty and until long series are available from one locality, the problem is likely to remain unsolved. Pairs have been collected in which the mandible width of the one is widely divergent from that of the other (but see Chapin). Chapin (p. 493) is probably right in his contention that "The present confusing conditions are best explained, I believe, by changes in the vegetation due to the recent activity of man, which has brought into contact large and small billed forms," and he advocates "study the nature of vegetational cover in each spot where *Pirenestes* is taken". Further (p. 498) "Since 1914 the clearings about Stanleyville have expanded enormously, and this should be a most propitious spot for a study of the relations between the large and small forms of *Pirenestes*" (the large form being *P. o. maximus* and the small, *P. o. rothschildi*).